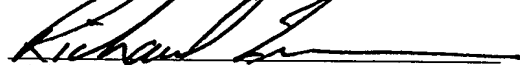


SOLE INVENTOR

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Richard Zimmermann

**APPLICATION FOR  
UNITED STATES LETTERS PATENT  
SPECIFICATION**

TO ALL WHOM IT MAY CONCERN:

Be it known that I, Steven M. Menow, a citizen of United States, residing  
at 1239 Ward Drive, Yardley 19067 in the State of Pennsylvania, have invented a new  
and useful **Throwing Toy with Interior Display Surface**, of which the following is a  
specification.

# THROWING TOY WITH INTERIOR DISPLAY SURFACE

## Background of the Invention

### 1. Field of the Invention

5 The present invention is directed to a throwing toy having a football-shaped body and a display surface provided in an interior compartment of the body.

### 2. Description of the Related Art

10 Football-shaped novelty items are known to have interior compartments for storage of items. For example, U.S. Design Patent No. D348,969 discloses a football-shaped mailbox wherein a lid on one end of the mailbox is openable to expose the mail receiving interior of the box. Similarly, U.S. Design Patent Nos. D354,642, Design Patent No. D411,715, and D452,120 disclose football-shaped coolers within interior insulated compartments for storing food items in a temperature controlled compartment. U.S. Patent No. 3,624,939 discloses a football-shaped container for storing and displaying photographs, such as those related to the game of football. None of these football-shaped  
15 novelty items are intended or suitable for use as a throwing toy for playing a football game. Further, none of these items is intended or suitable for use by children to play a football game.

Children often play pick-up or sand-lot football games with a group of friends. When one team draws up plays to run during the game, the plays are either relayed  
20 verbally to team members or relayed visually to teammates by drawing a play in the dirt. If only verbal play instructions are given, the players often cannot remember the proper play, or may differ on the exact nature of the play called. If drawn in the dirt, the players can visualize the play called, but the opposing team can also sometimes see the play as it is drawn up.

## 25 Summary of the Invention

The present disclosure is directed to, in one aspect, a throwing toy having a football-shaped body with an openable section. A compartment is defined within the football-shaped body that is exposed when the openable section is opened. A display surface is exposed within the compartment when the openable section is opened. The  
30 display surface can be written on, erased, and reused.

In another aspect, the throwing toy includes a hinged assembly coupled to both the openable section and the football-shaped body within the compartment. The hinged assembly defines thereon the display surface. The hinged assembly can define at least a second surface for displaying representative sample items that are useful for the throwing toy when utilized for playing a game.

In another aspect, a throwing toy has a football-shaped body with two opposite ends, a cut-out opening formed in the body between the opposite ends, and a compartment defined by the opening within the football-shaped body. An openable body section is received in the opening and is movable between an open position and a closed position. The body section provides access to the compartment when in the open position. The body section also covers the opening and forms a part of the football-shaped body when in the closed position. An erasable and reusable writing surface is exposed and accessible within the compartment when the body section is in the open position.

In yet another aspect, a toy football has a football-shaped body with two opposite ends, a cut-out opening formed in the body between the opposite ends, and a compartment defined by the opening within the football-shaped body. An openable body section is received in the opening and is movable between an open position and a closed position. The body section provides access to the compartment when in the open position. The body section also covers the opening and forms a part of the football-shaped body when in the closed position. A display surface is exposed and accessible within the compartment when the body section is in the open position. The throwing toy can be utilized as a football when the openable body section is in the closed position.

In one aspect, the display surface of the toy football is an erasable and reusable writing surface. In another aspect, the display surface is an indicia surface providing pre-printed reference information useful for playing a game of football.

#### Brief Description of the Drawings

The features and advantages of the present invention will be apparent to those of ordinary skill in the art in view of the detailed description of the preferred embodiment, which is made with reference to the drawings, a brief description of which is provided below.

FIG. 1 illustrates a perspective view of a throwing toy constructed in accordance with the teachings of the present invention.

FIG. 2 illustrates a perspective view of the throwing toy depicted in FIG. 1 and having an openable section shown in an open position.

5        FIG. 3 illustrates the throwing toy depicted in FIGS. 1 and 2 wherein a liftable erasing surface is shown raised from a display surface.

FIG. 4 illustrates a longitudinal cross section of the throwing toy and taken along line IV-IV of FIG. 1.

10       FIG. 5 illustrates an exploded view of the hinge assembly structure of the throwing toy depicted in FIGS. 1-3.

FIG. 6 illustrates a lateral cross section of the throwing toy and taken along line VI-VI of FIG. 4 and showing the openable section in a closed position.

FIG. 7 illustrates a lateral cross section of the throwing toy of FIG. 6 and showing the openable section in a partially opened position.

15       FIG. 8 illustrates a lateral cross section of the throwing toy of FIG. 6 and showing the openable section in a fully open position.

FIG. 9 illustrates an alternative example of a throwing toy constructed in accordance with teachings of the present invention.

#### Detailed Description of the Preferred Embodiments

20       The present disclosure is directed to a throwing toy having a football-shaped body with an openable section. A compartment within the body is exposed when the openable section is opened. A display surface is exposed within the compartment when the openable section is opened wherein the display surface can be written on, erased, and reused. The disclosed throwing toy enhances the enjoyment and excitement for users of  
25       the throwing toy while playing a game, such as a game of football. For example, when children play a game of pickup football, they often write plays in the dirt or describe plays to their teammates without visually depicting the particular task for each player. The disclosed throwing toy permits users to depict information such as a play on the writing surface exposed within the compartment so that each player can better understand their  
30       particular task and all the teammates are on the same page. The throwing toy can also be

utilized for relaying messages from one person to another by writing a message on the display surface and throwing the ball to the intended recipient of the message.

Referring now to the drawings, FIG. 1 illustrates one example of a throwing toy 10 constructed in accordance with the teachings of the present invention. The throwing toy 10 is in the form of a toy football and generally has a football-shaped body 12. A football shape is typically known to be generally elliptical in lengthwise cross section (see FIG. 4) and substantially circular in lateral cross section (see FIG. 5). The body 12 in the present example includes a pair of opposed ends 14 and 16 which are generally pointed, though not necessarily sharply pointed. The body 12 also includes a much larger diameter mid-section 18.

As illustrated in FIGS. 2 and 3, the mid-section 18 of the football-shaped body 12 includes a cut-away portion defining an opening 20 therein, which further forms an interior compartment 22 in the football-shaped body. In order to access the compartment 22, the football-shaped body 12 includes an openable section 24 sized to fit within the opening 20 and to define a portion of the exterior surface 26 of the entire throwing toy 10. The exterior surface 26 is a continuous football-shaped surface when the openable section is closed, as depicted in FIG. 1.

In one example, the football shaped body 12 of the throwing toy 10, including the openable section 24, is a generally solid but flexible or pliable material. The body 12 in this example is formed from an open cell foam rubber or polyurethane material with an exterior skin. The material in this example provides a football shaped throwing toy 10 that is soft and resilient, and yet sturdily holds its shape. The football-shaped body 12 and the openable section 24 are each made of the same material in one example so that the toy has a consistent feel regardless of where the toy is gripped. As will be evident to those having ordinary skill in the art, the particular structure and material of the throwing toy 10 can vary considerably and yet fall within the spirit and scope of the present invention. An example of such a solid foam ball construction is known in the art as a NERF® football.

In one example, as depicted in FIGS. 2 and 3, the throwing toy 10 generally has at least one display surface 30 provided within the compartment 22. The display surface 30 is exposed and is visible when the openable section 24 is in an opened position as illustrated in FIG. 2. When the openable section 24 is in a closed position as depicted in

FIG. 1, the display surface 30 is not visible and is instead covered, and the football-shaped body 12 including its exterior surface 26 is a substantially contiguous surface.

The display surface 30 in this example, when exposed, faces upward from the compartment 22. Also in this example, the display surface is capable of displaying information written thereon and is also capable of being erased and reused as desired. A writable and erasable display surface can be any type of surface providing these characteristics. In one example as illustrated in FIGS. 2 and 3, the display surface 30 can include an opaque base surface layer 32 and a liftable transparent layer 34. The transparent layer 34 rests on and overlies the base surface layer 32, and can be lifted therefrom as shown in FIG. 3. A hard object (not shown), preferably with a narrow or generally pointed end, can be utilized to press against the transparent layer 34 when borne against the base layer 32. Information is displayed and retained by the display surface 30 wherever the transparent layer 34 has been pressed by the object against and sticks to the base layer 32. When it is desired to erase this information and again render the display surface 30 blank, one merely needs to lift the transparent layer 34 from the base layer 32. This causes all previously written information to be erased. As intended, the display surface 30 can be reused over and over. Such a reusable writing surface is disclosed in, for example, U.S. Patent No. 4,927,748, and uses a luminescent dye in one of the two layers. Virtually any type of surface capable of displaying desired "written" information thereon can be utilized as the writable and erasable surface 30. An LCD screen, a MAGNADOODLE™ surface, a dry erase marker surface, or the like, as well as any other suitable surface, can be substituted.

In one example, the throwing toy 10 can also include a display surface in the form of a visual indicia surface 36 for providing, for example, preprinted informational indicia 38 for the user. As shown in the example of FIGS. 2 and 3, the surface 36 provides a selection of indicia 38 that depict various pass route options that may be useful during play of a football game. A user can, if desired, select one or more of the pass route indicia 38 and indicate the selections to their teammates. If the throwing toy also includes a writable surface 30, the user can draw the selected routes on the display surface 30 so that team members can see the routes prior to running a play.

As will be evident to those having ordinary skill in the art, the preprinted informational indicia 38 can differ from the pass route examples shown herein and yet fall within the spirit and scope of the invention. The indicia 38 can depict entire football

plays, for example, or some other information, depending upon the form of the throwing device or the game to be played. Alternatively, no such optional indicia surface 36 need be provided.

As disclosed in this example, the indicia display surface 36 is provided on a  
5 bottom side 40 of the openable section 24. The writable display surface 30 is provided facing upward from the compartment 22. In an alternative example, the indicia display surface 38 can be provided facing upward from the compartment 22 and the writable display surface 30 can be provided on the bottom side 40 of the openable section 24. Further, in one example, the throwing toy 10 can include only an indicia display surface  
10 36 that provides sample preprinted information for the user, and not include a writable display surface 30. In a still further alternative, the throwing toy 10 can include two writable display surfaces or two preprinted indicia display surfaces.

In one example, the throwing toy 10 can include a positive latching mechanism for holding the openable section 24 closed. As shown in FIGS. 2 and 3, for example, the  
15 latching mechanism can be, at least in part, a hook and loop fastener, which is often referred to or recognized as VELCRO®. A hook or loop layer 42 can be adhered or attached to the bottom side 40 of the openable section 24. A corresponding loop or hook layer 44 can be adhered or attached to a surface 46 of the compartment 22 that faces the bottom side 40 of the openable section. When the openable section 24 is closed, the hook  
20 and loop layers 42 and 44 abut and removably secure to one another to retain the closed condition. As will be evident to those having ordinary skill in the art, the latching mechanism can be any suitable type of device to hold the openable section 24 closed. Alternatively or additionally, as described below, the throwing toy 10 can incorporate a  
25 biasing device or mechanism that biases the openable section 24 to the closed position to hold or assist in holding the openable section closed.

As illustrated in FIGS. 4 and 5, the throwing toy 10 includes what is called hereinafter a hinge assembly 50. The hinge assembly 50 has a number of components which, in part, define the writable display surface 30 and the indicia display surface 36 described herein. The hinge assembly also provides the structure for interconnecting the  
30 openable section 24 to the remainder of the football-shaped body 12 in this disclosed example.

As shown generally in FIG. 4, the football-shaped body 12, including the openable section 24 is molded around portions of the hinge assembly 50. The foam polyurethane material of the body 12 and the openable section 24 surrounds and covers a substantial portion of the hinge assembly 50 components. As will be evident to those having ordinary skill in the art, the particular process utilized to form the throwing toy 10, such that the body 12 surrounds the hinge assembly 50 can vary considerably and yet fall within the scope of the present invention. In one example, the material of the football-shaped body 12 is injection molded around the hinge assembly 50, which is installed in the mold as an insert prior to the molding process in a mold cavity. In one example, the openable section 24 is molded separately from the remaining part of the football-shaped body 12. Respective portions of the hinge assembly 50 can be insert molded separately with the corresponding portions of the body.

FIG. 5 illustrates an exploded view of the hinge assembly 50 in this disclosed example. Those having ordinary skill in the art will appreciate that the hinge assembly structure and components can change from that described herein. The disclosed hinge assembly 50 and its structure and components are merely provided herein as one example of a structure to achieve the throwing toy 10 with the openable section 24 in accordance with the teachings of the present invention.

The disclosed hinge assembly 50 generally has a hinge base 52 defining an upwardly facing receiving well 54 therein. The hinge base 52 also includes a pair of opposed and outwardly extending plastic open loop structures 55. The structures 55 extend from ends of the base 52 that correspond with the ends 14 and 16 of the football-shaped body 12. The molded foam material of the body 12 entirely encompasses the structures 55 and extends through the open loops to securely hold the hinge base 52 in place within the body 12 of the throwing toy 10. The hinge base 52 also includes a pair of upwardly extending latching tabs 56 that are disposed on opposite sides of the receiving well 54.

The hinge assembly 50 also has a hinge support 58 that has a downwardly projecting wall 60 sized to be received within the receiving well 54 of the base 52. The hinge support 58 also includes a pair of oppositely and outwardly extending flanges 62 that bear against portions of the open loop structures 55. Tab receiving openings 64 are provided within the flanges 62 and extend partly downward into a portion of the wall 60. The hinge support 58 snaps into the receiving well 54 of the hinge base 52. The tabs 56



include detent teeth 66 that snap through the tab openings 64 and over an edge 68 of the openings to secure the hinge support 58 to the base 52. The hinge base 52 and hinge support 58 in this example are secured together and do not move relative to one another and also do not move relative to the football-shaped body 12. As can be seen in FIG. 4, the molding structures 55 are completely surrounded by material of the body 12, as are most of the surfaces of the base 52 to securely hold the components in position within the body. The base 52 can be insert molded as part of the body 12, and the support 58 can be snapped in place after the molding process, as in this example.

The disclosed hinge support 58 includes an upstanding wall 70 along one edge extending between the opposed flanges 62. A pair of bore extensions 71 extend outward from opposite ends of the wall 70. An axle bore 72 is provided through each of the bore extensions and is coaxial with one another for receiving a first hinge axle 74 therethrough. A first plate 76 is provided that defines the disclosed writable display surface 30. The plate 76 includes a first edge 78 with an extension 80 defining a bore 82 therethrough. The extension 80 slips between the pair of bore extensions 71 and is positioned such that the bore 82 aligns with the pair of axle bores 72 in the upstanding wall 70 of the hinge support 58. The first hinge axle 74 is installed through the bores 82 and 72 to pivotally secure the first plate 76 to the hinge support 58. The joint between the first edge 78 of the first plate 76 and the hinge support 58 defines a first hinge permitting the first plate to pivot upward relative to the hinge support 58.

A second plate 84 in this disclosed example defines the indicia display surface 36. The second plate 84 includes a lower edge 86 positioned adjacent a second edge 88 of the first plate 76. The second plate 84 has a first pivot axis defined by a pair of pivot trunnions 90 extending forward from the indicia surface 36 adjacent the lower edge 86. Each of the pivot supports 90 of the trunnion defines a pivot pin opening 92 therein, which are coaxially aligned with one another. The second plate 84 also has two pairs of axle mounts 94, which are spaced apart from one another and positioned on opposite ends or edges of the second plate 84. Each pair of axle mounts 94 is also spaced apart defining a gap 96 therebetween. Each of the axle mounts 94 defines an axle bore 98, which are also aligned with one another and define a second axis. The second axis of the axle bores 98 and the first axis of the pivot pin openings 92 are offset relative to one another. The pivot pin openings 92, and thus the first axis, are positioned closer to the lower edge 86 of the second plate 84.

The second edge 88 of the first plate 76 also includes an axle extension 100 extending therefrom. The axle extension 100 defines an axle bore 102 extending therethrough. To pivotally connect the second plate 84 to the first plate 76, the axle extension 100 is disposed between the two pairs of axle mounts 94. A second hinge axle 104 is received through the axle bore 102 and the axle bores 98 in the axle mounts 94.

An L-shaped link 106 has a first leg 108 with a pivot pin bore 110 extending transversely across the width of the link. A second leg 112 of the link 106 is arranged generally perpendicular to the first leg 108 and includes a pair of pin extensions 114 defining a trunnion. Each extension includes a pivot pin bore 116, which are coaxially aligned with one another. A carriage 118 extends upward from a surface of the hinge support 58. The carriage 118 has an upper end received between the pin extension 114 and defines a pin bore 120 extending laterally through the carriage. The pin bore 120 and pin bores 116 of the pin extensions 114 of the trunnion align with one another. A first pivot pin 122 is received through the bores 120 and 116 to pivotally connecting the link 106 to the carriage 118.

At the opposite end of the link 106, the first leg 108 is positioned between the pivot supports 90 such that the pivot pin openings 92 and the pivot pin bore 110 coaxially align with one another. A second pivot pin 124 is received through the bore 110 and the pin openings 92 to secure the second end of the link 106 to the lower edge 86 of the second plate 84.

The function and operation of the linkage arrangement connecting the hinge support 58, the first plate 76, and the second plate 84 is described below. The hinge assembly 50 also includes a biasing mechanism provided to bias the first plate 76 against the flanges 62 of the hinge support 58 and to bias the second plate 84 parallel with and against the first plate 76. Thus, the indicia display surface 36 and writable display surface 30 are biased to bear generally against one another. In the disclosed example, the biasing mechanism includes two separate spring arrangements.

A coil spring 126 is connected at a first end to the hinge base 52 within the receiving well 54. A second end of the coil spring 126 is coupled to a downwardly depending connector pin 128 that extends from a bottom surface of the first plate 76. The coil spring 126 is installed under tension such that it biases the first plate 76 downward

toward the hinge support 58. In order to raise the first plate 76, the biasing force of the coil spring 126 must be overcome.

5 The disclosed biasing mechanism example also incorporates a pair of torsion springs 130. Each torsion spring is mounted between one of the pairs of axle mounts 94 of the second plate 86. The second hinge axle 104 is received through each of the torsion  
springs 130 to hold them in place. Each torsion spring 130 has a pair of terminal legs 132 and 134 oriented relative to one another in this example about 90° to about 100°. The first  
leg 132 is received under and bears against the underside of the first plate 76 when  
installed and with the first plate positioned horizontally. The second leg of each torsion  
10 spring 130 extends generally upward when so oriented. As illustrated in FIG. 6, the second plate 84 includes a pair of spring towers 136 spaced apart on and extending upward from the side of the plate opposite the surface 36. Each spring tower 136 has a vertical bore in which the second legs 134 of the torsion springs are received and held. A  
slight biasing force of the torsion springs 130, created by the at-rest orientation angle  
15 between the torsion spring legs, can be utilized to positively hold the second plate 84 borne against the first plate 76. In order to pivot the second plate 84 relative to the first plate, one must overcome the biasing force of the pair of torsion springs 130.

Operation of the hinge assembly 50 and the openable second 24 of the throwing  
toy 10 is now described with reference to FIGS. 5-8. FIG. 6 illustrates the openable  
20 section 24 in a closed position, and FIGS. 7 and 8 depict the openable section as it is being opened and when fully opened. In the closed position, the link 106 is in a generally horizontal reference position depicted in the drawing. The second plate 84 is horizontally orientated and borne against the first plate 76. The first plate 76 is similarly in a horizontal orientation and borne against the hinge support 58. As the openable section 24  
25 is opened, the second plate 84 pivots relative to both the link 106 about the second pivot pin 124 and the first plate 76 about the second pivot axle 104. The first plate 76 pivots about its first edge at the first hinge axle 74 and rises to a non-horizontal reference position. The link 106 also pivots relative to the carriage 118 about the first pivot pin 122, and pivots relative to the second plate 84 about the second pivot pin 124 and, thus, the first  
30 leg 108 rises. This linkage arrangement permits the second edge 88 of the first plate 76 to rise as the second plate 84 pivots about the first plate 76. As a result, a rear edge 138 of the openable section 24 to clear the adjacent portion 139 of the opening 20 in the football-shaped body 12. The coil spring 126 and torsion springs 130 are biased against this

motion but their combined spring forces can be overcome by a force lifting the forward edge 140 of the openable section 24.

FIG. 8 illustrates the openable section 24 in a fully opened position. The display surface 30 on the first plate 76 is oriented at an angle relative to a horizontal reference and thus presents a writable display surface 30 that is easier to access and write on within the compartment 22. When one wishes to close the openable section 24, one need only release the openable section 24. The biasing mechanism, including the torsion and coil springs in this disclosed example, will force the openable section to the closed position depicted in FIGS. 1 and 6.

As will be evident to those having ordinary skill in the art, the hinge assembly 50 can vary considerably from the example shown and described herein. The structure and characteristics of the individual components may also vary considerably and yet fall within the spirit and scope of the present invention. Though the plates 76 and 84, the support 58, and the base 52 can be made from plastic for weight reduction and strength reasons, the components can be made from any suitable materials as desired. Further, the axles, pins, and springs can be provided from steel or any other suitable material.

As illustrated in FIGS. 6-8, the first and second plates 76 and 84 can include perimeter and/or interior stiffening walls, ribs, and ridges to strengthen the plate structure. The plates can also include, if needed or desired, structural characteristics intended to securely hold the plates assembled in the foam material. Alternatively, and as discussed above, the hinge base 52 may be in-molded as part of the body 12, and the hinge support can snap into place as a subsequent assembly process. Similarly, as depicted in FIGS. 6-8, the openable section 24 may mate with a mounting receptacle 142 insert or in-molded and/or adhered within a recess in the openable section. The second plate 84 can include an extension 144 adapted to be received in and secured or adhered to the mounting receptacle 142. The present invention is not intended to be limited to the particular structure of the hinge assembly or any of components.

Many characteristics of the throwing toy 10 as described herein can vary considerably and yet fall within the spirit and scope of the present invention. FIG. 9 illustrates only two of many different examples of modifications and changes that can be made to the disclosed throwing toy example which are intended to fall within the scope of the present invention. In FIG. 9, a throwing toy 210 includes a dry erasable display

surface 212 that is a markable and erasable surface with no transparent liftable layer. The surface 212 can be any dry erase surface on which information can be written and displayed and from which such information can be erased. In one example, the surface 212 is suitable for use with dry erase ink markers as are known in the art. The throwing  
5 toy 210 depicted in FIG. 9 also illustrates another example where a writing utensil 214 is provided as part of the throwing toy 210. In this example, the utensil 214 is attached to the interior compartment 22 of the toy by a tether 216. The utensil can be provided with a mounting receptacle or storage location within the compartment.

Though not shown, in another example, the football-shaped body can simply be  
10 divided between the two ends into two halves or two sections, i.e. two body parts. The two body parts can be hinged and openable relative to one another. When opened, each body part half can expose a surface that can define an indicia display surface. When closed, the two surfaces will be hidden and confront one another within the football-shaped body. Thus, in such an example, no compartment would necessarily be formed  
15 within the body. Either or both of the exposed surfaces can be utilized to provide a writable and erasable surface and/or an informational indicia reference surface.

Modifications and alternative embodiments of the invention will be apparent to those skilled in the art in view of the foregoing description. This description is to be construed as illustrative only, and is for the purpose of teaching those skilled in the art the  
20 best mode of carrying out the invention. The details of the structure and method may be varied substantially without departing from the spirit of the invention, and the exclusive use of all modifications which come within the scope of the appended claims is reserved.